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**Committee on the Peaceful
Uses of Outer Space
Scientific and Technical Subcommittee
Fifty-fifth session
Vienna, 29 January–9 February 2018**

Draft report**I. Introduction**

1. The Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space held its fifty-fifth session at the United Nations Office at Vienna from 29 January to 9 February 2018, with Pontsho Maruping (South Africa) as Chair.
2. The Subcommittee held [...] meetings.

A. Attendance

3. Representatives of the following [...] States members of the Committee attended the session: Algeria, Argentina, Armenia, Australia, Austria, Azerbaijan, Belarus, Belgium, Bolivia (Plurinational State of), Brazil, Bulgaria, Burkina Faso, Canada, Chile, China, Colombia, Costa Rica, Cuba, Czechia, Denmark, Ecuador, Egypt, France, Germany, Greece, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Japan, Jordan, Kazakhstan, Kenya, Libya, Luxembourg, Malaysia, Mexico, Mongolia, Morocco, Netherlands, New Zealand, Nicaragua, Nigeria, Norway, Oman, Pakistan, Peru, Poland, Portugal, Qatar, Republic of Korea, Romania, Russian Federation, Saudi Arabia, Slovakia, South Africa, Spain, Sri Lanka, Sudan, Sweden, Switzerland, Tunisia, Turkey, Ukraine, United Arab Emirates, United Kingdom of Great Britain and Northern Ireland, United States of America, Venezuela (Bolivarian Republic of) and Viet Nam.
4. At its 875th meeting, on 29 January, the Subcommittee decided to invite, at their request, observers for Cyprus, the Dominican Republic, Finland, Malta and Paraguay to attend the session and to address it, as appropriate, on the understanding that it would be without prejudice to further requests of that nature and that doing so would not involve any decision of the Committee concerning status.
5. At the same meeting, the Subcommittee decided to invite, at its request, the observer for the European Union to attend the session, in accordance with General Assembly resolution 65/276, entitled "Participation of the European Union in the work of the United Nations", and to address it, as appropriate, on the understanding that it would be without prejudice to further requests of that nature and that doing so would not involve any decision of the Committee concerning status.



6. Also at the same meeting, the Subcommittee decided to invite, at its request, the observer for the Sovereign Military Order of Malta to attend the session and to address it, as appropriate, on the understanding that it would be without prejudice to further requests of that nature and that doing so would not involve any decision of the Committee concerning status.

7. Observers for the Food and Agriculture Organization of the United Nations (FAO), the International Atomic Energy Agency (IAEA), the International Civil Aviation Organization (ICAO), the International Telecommunication Union (ITU), the World Health Organization (WHO) and the World Meteorological Organization (WMO) attended the session.

8. The session was attended by observers for the following intergovernmental organizations with permanent observer status with the Committee: Asia-Pacific Space Cooperation Organization (APSCO), European Southern Observatory (ESO), European Space Agency (ESA), European Telecommunications Satellite Organization (EUTELSAT-IGO) and International Telecommunications Satellite Organization (ITSO).

9. The session was attended by observers for the International Asteroid Warning Network (IAWN) and the Space Mission Planning Advisory Group (SMPAG), in accordance with the agreement of the Subcommittee at its fifty-third session (A/AC.105/1109, para. 182).

10. The session was attended by observers for the following non-governmental organizations having permanent observer status with the Committee: African Association of Remote Sensing of the Environment (AARSE), Committee on Space Research (COSPAR), Eurisy, European Space Policy Institute (ESPI), International Academy of Astronautics (IAA), International Association for the Advancement of Space Safety (IAASS), International Astronautical Federation (IAF), International Astronomical Union (IAU), International Society for Photogrammetry and Remote Sensing (ISPRS), International Space University (ISU), National Space Society (NSS), Prince Sultan bin Abdulaziz International Prize for Water (PSIPW), Scientific Committee on Solar-Terrestrial Physics (SCSTEP), Secure World Foundation (SWF), Space Generation Advisory Council (SGAC), University Space Engineering Consortium-Global (UNISEC-Global) and World Space Week Association (WSWA).

11. At its 875th meeting, the Subcommittee decided to invite, at their request, the observers for the International Organization for Standardization (ISO) and the Organization on Space Technologies for Societal Applications (Canada-Europe-United States-Asia) (CANEUS) to attend the session and to address it, as appropriate, on the understanding that it would be without prejudice to further requests of that nature and that it would not involve any decision of the Committee concerning status.

12. A list of the representatives of States, United Nations entities and other international organizations attending the session is contained in A/AC.105/C.1/2018/INF/...].

B. Adoption of the agenda

13. At its 875th meeting, on 29 January, the Subcommittee adopted the following agenda:

1. Adoption of the agenda.
2. Election of the Chair.
3. Statement by the Chair.
4. General exchange of views and introduction of reports submitted on national activities.
5. United Nations Programme on Space Applications.

6. Space technology for sustainable socioeconomic development.
7. Matters relating to remote sensing of the Earth by satellite, including applications for developing countries and monitoring of the Earth's environment.
8. Space debris.
9. Space-system-based disaster management support.
10. Recent developments in global navigation satellite systems.
11. Space weather.
12. Near-Earth objects.
13. Use of nuclear power sources in outer space.
14. Long-term sustainability of outer space activities.
15. Examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, including in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries, without prejudice to the role of the International Telecommunication Union.
16. Draft provisional agenda for the fifty-sixth session of the Scientific and Technical Subcommittee.
17. Report to the Committee on the Peaceful Uses of Outer Space.

C. Election of the Chair

14. At its 875th meeting, the Subcommittee elected Pontsho Maruping (South Africa) as its Chair for the period 2018–2019, pursuant to General Assembly decision 72/518.

D. General statements

15. Statements were made by representatives of the following member States during the general exchange of views: Algeria, Argentina, Austria, Belarus, Brazil, Canada, Chile, China, Costa Rica, Cuba, Czechia, Denmark, France, Germany, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Japan, Kenya, New Zealand, Nigeria, Norway, Oman, Pakistan, Poland, Portugal, Qatar, Republic of Korea, Romania, Russian Federation, Saudi Arabia, South Africa, Sri Lanka, Switzerland, Ukraine, United Kingdom, United States and Venezuela (Bolivarian Republic of). Statements were also made by the representative of Argentina on behalf of the Group of Latin American and Caribbean States and by the representative of Egypt on behalf of the Group of African States. The observer for the European Union also made a statement. The observer for WMO made a statement. Statements were also made by the observers for COSPAR, ESPI, Eurisy, IAF, IAU, ISU, SGAC, SWF, UNISEC-Global and WSWA.

16. The Subcommittee heard the following scientific and technical presentations:
- (a) "Austria in space", by the representative of Austria;
 - (b) "IAA report of activity", by the observer for IAA;
 - (c) "Recent accomplishments of SCOSTEP in Sun-Earth connection studies", by the observer for SCOSTEP;
 - (d) "Role of the middle atmosphere for climate", by the observer for SCOSTEP;

- (e) "United States commercial space transportation regulations", by the representative of the United States;
- (f) "The belt and road space information corridor as a driver for socioeconomic sustainable development", by the representative of China;
- (g) "Technical University Vienna space team: a students' initiative with emphasis on aerospace engineering", by the representative of Austria;
- (h) "Italian engagement in capacity-building activities in Africa", by the representative of Italy;
- (i) "New thrust in Indian space programme: a glance", by the representative of India;
- (j) "ISU Team Project ARESS: a roadmap for emerging space States", by the observer for ISU;
- (k) "Vision 2030-All: How can we contribute to sustainable development through capacity-building programmes in the field of space science and technology?", by the observer for UNISEC-Global;
- (l) "Detection of intact lava tubes on the Moon by SELENE (Kaguya)", by the representative of Japan;
- (m) "Outcome of the Space Generation Congress", by the observer from SGAC;
- (n) "Cost-effective high bandwidth connectivity to rural points on Earth utilizing nanosatellite technologies", by the representative of Israel;
- (o) "SUCHAI: the first satellite built in Chile", by the representative of Chile;
- (p) "Academy of Sciences' research: technological programmes aimed at the development of the Belarussian aerospace sector", by the representative of Belarus;
- (q) "Nahid-I satellite" by the representative of the Islamic Republic of Iran;
- (r) "BRITE constellation: scientific highlights of five years of operation", by the representative of Austria;
- (s) "Development of outer space activities of the Republic of Kazakhstan", by the representative of Kazakhstan.

17. The Subcommittee welcomed Bahrain, Denmark and Norway as the newest States members of the Committee, bringing its membership to 87 States. The Subcommittee also welcomed the European Science Foundation, represented by the European Space Sciences Committee, and UNISEC-Global as the newest permanent observers of the Committee.

18. At the 875th meeting, on 29 January, the Chair of the Subcommittee made a statement outlining the work of the Subcommittee at its fifty-fifth session. She brought to the attention of the Subcommittee several provisions contained in General Assembly resolution 72/77 that pertained to the current work of the Subcommittee and drew particular attention to the fact that the General Assembly had emphasized the significant progress made in the development of space science and technology and their applications that enabled humans to explore the universe, and the extraordinary achievements made in space exploration efforts. She noted that the General Assembly had recognized the unique platform at the global level for international cooperation in space activities represented by the Committee and its Subcommittees and assisted by the Office for Outer Space Affairs. She also noted that the General Assembly had welcomed the adoption by the African Union of the African Space Policy and Strategy. She further noted that the African continent could benefit greatly from strengthened space policy, capabilities and infrastructure.

19. At the same meeting, the Director of the Office for Outer Space Affairs made a statement in which she reviewed a number of important areas of the Office's activities,

namely, capacity-building and measures to strengthen and broaden it; the facilitation of international space cooperation and the building of partnerships, and the coordination of space projects carried out by States and other actors; the promotion of the utilization of space technology within the United Nations system; and the development of rule- and principle-based cooperation between industry and the private sector.

20. The Director drew the attention of the Subcommittee to the fact that a number of factors had considerably changed the way the Office could effectively plan, manage and implement its mandated activities. Those factors were the implementation of the United Nations enterprise resource planning system, Umoja; the increase in requests from Member States; and the additional mandate of the Office relevant to the fulfilment of the Sustainable Development Goals. She stressed the current, unfavourable financial situation of the Office and highlighted the importance of having financial and other resources available for the successful implementation of its programme of work.

21. Also at the 875th meeting, Johannes Huisman, Director of the Programme Planning and Budget Division of the Department of Management of the Secretariat, made a statement in which he outlined and clarified the budgetary principles, practices and aspects of the substantive intergovernmental processes, including in the context of the programme on the peaceful uses of outer space.

22. The Subcommittee noted with appreciation the establishment at United Nations Headquarters, under the leadership of the permanent missions of Austria and Zambia, of the Group of Friends of the Office for Outer Space Affairs.

23. The Subcommittee agreed that the fiftieth anniversary of the United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE+50) offered a unique opportunity for countries to reflect on the achievements of the more than 50 years of space exploration and to look towards the future, strengthening the mandates of the Committee, its subsidiary bodies and the Office as unique platforms for international space cooperation, in order to align their work with the current challenges and opportunities in the space arena, making them fit for purpose and responsive to new realities in the space enterprise, which was witnessing an ever-growing number of actors, their diversification and the diversification of space activities.

24. The Subcommittee noted that UNISPACE+50 coincided with the Secretary-General's system-wide efforts to engage with Member States to strengthen the work of the United Nations, overcome silos and deliver as one, and that outer space was a vital part of the issues that the Secretary-General had identified in those priorities.

25. The Subcommittee noted that Member States had consistently reaffirmed, in intergovernmental agreements, the need for gender equality and the empowerment of women, and that the 2030 Agenda for Sustainable Development had provided additional momentum and clear targets. In that regard, the Subcommittee noted the development by the Office for Outer Space Affairs of the "Space for women" initiative to promote gender empowerment and gender equality, not only within the United Nations, but also within the space sector.

26. The Subcommittee noted that 2017 had been a historic year for space activity. Over 450 functional space objects had been launched or deployed into Earth orbit or beyond, nearly double the number launched in 2016. In that connection, the Subcommittee noted that the Office was of the view that such a substantial increase in the number of space objects launched could impact existing national registration mechanisms and that it was important to improve the efficiency of the mechanism used by States of registry to provide information to the Secretary-General.

27. The Subcommittee agreed that, without space science and technology, and in particular without communication and navigation systems, it would be impossible to meet the current and future challenges to social and economic development and sustainability, such as natural disasters, food security, Earth observation, climate

change and natural resource security. The Subcommittee emphasized that space activities were also crucial to supporting sustainable development, in particular as part of efforts to support sustainable economic growth, improve quality of life and manage the global environment.

28. The Subcommittee noted the instrumental role it had played in the development of the legal regime governing the use of outer space activities for peaceful purposes and in efforts to provide a unique multilateral platform at the global level for enhancing international cooperation for the benefit of all countries, in particular in the area of using space applications for sustainable development, including within the context of the 2030 Agenda for Sustainable Development.

29. The Subcommittee welcomed the adoption by the General Assembly of its resolution 72/78, entitled "Declaration on the fiftieth anniversary of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies", in which, among other things, the Assembly had reiterated the importance of the principles contained in its resolution 1962 (XVIII), entitled "Declaration of legal principles governing the activities of States in the exploration and use of outer space".

30. Some delegations reiterated the importance of ensuring equitable access to space technologies and applications by all States, in particular developing countries, and that UNISPACE+50 would go a long way towards recognizing such needs. The delegations expressing that view were also of the view that sharing experiences, technology and initiatives would help to bring the benefits of outer space activities to all humankind.

31. Some delegations were of the view that space was a global commons on which the daily life of humankind increasingly relied, and that space technology and applications had great potential to help achieve the goals set out in the 2030 Agenda for Sustainable Development. The delegations expressing that view were also of the view that it was important to build good governance within the space arena, and that UNISPACE+50 could contribute to that goal by: (a) mobilizing the space economy to help create jobs and economic growth; (b) mobilizing space technology and applications for societal objectives such as improving global health (related to Sustainable Development Goal 3) and increasing the resilience of societies to climate change, disasters and space hazards; (c) increasing access to space-based data and applications to help all actors to play a role in the achievement of the Sustainable Development Goals; and (d) enhancing the sustainability of outer space activities.

32. Some delegations recognized the benefits derived from the sustainable and exclusively peaceful uses of outer space and reaffirmed that such use was essential to present and future generations. In that connection, those delegations noted that the international community should seek ways and means of avoiding an arms race, and should consider the broader perspective of space security and associated matters, as reiterated by the General Assembly in its resolution 72/77.

33. The view was expressed that, given the current turbulent political climate and the attempts to apply geopolitical schemes with regard to outer space, it was important to understand whether it would still be possible to develop a common strategy for the Committee's activities as a unique international forum for the formation of space policy and development of international space law, which would be shared by all its States members. Such a strategy was greatly needed in order to strengthen the Committee's potential to integrate the will and intentions of States, which was important in view of increasing divergence in the intellectual trends of modern space policy.

34. Some delegations expressed the view that space exploration activities should be conducted with due regard to international peace and security and that outer space should never become a theatre of war. The delegations expressing that view were also of the view that States should commit in earnest to the prevention of an arms race and refrain from placing and using weapons in outer space.

35. The view was expressed that the outer space environment was threatened not only by physical elements, such as increasing amounts of debris, but also by conflicting economic and political interests, and that solutions to such challenges could be found through the work of States within the framework of the Committee and its Subcommittees.

36. The view was expressed that safety and security in outer space, which are essential for space activity and strategic stability, as well as the level of partnership in space exploration and use, were defined by the correlation and interaction of many factors. In that connection, it was important to protect space activity from geopolitical turbulence while responding to challenges to safety and security in outer space through the joint efforts of States.

37. Some delegations expressed the view that changes in the reality of outer space activities, which presently included an increasing number of State and non-State actors, were both a challenge and an opportunity, and that the Committee had the mandate to discuss the reality of outer space exploration and the issues arising from commercial exploitation activities.

38. The view was expressed that analysis of the negative trends in current international relations indicated uneasy times ahead, and that the entire system of international space law would be put to the test. That presumption had been confirmed during work on a report on thematic priority 1 (Global partnership in space exploration and innovation), which had witnessed attempts to include in the text not only questionable, but also unacceptable arguments calling for the cementing of the leading role of the private sector in the formation of major aspects and the character of the future regulation of space activities. The delegation expressing that view was also of the view that the potential of private space activities should not be underestimated, and that while each State had the right to organize its private space activities in accordance with its own vision, it should do so in strict compliance with its responsibilities under the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.

39. The view was expressed that, while it was important to respect the need of some States to develop national legislation to enable an encouraging business environment for investors, domestic laws would remain limited in scope and would not replace an internationally agreed instrument that could be negotiated only within the framework of the Committee and its Subcommittees: domestic legislation, despite its positive aspects, could not achieve what could only be realized by means of a multilateral instrument that catered to the interests of the international community.

40. Some delegations expressed the view that, given the impact of space activities on human life and the environment and the current state of technological advances, coupled with the increasingly prominent role played by new private actors, the Scientific and Technical Subcommittee and the Legal Subcommittee should enhance their interaction and coordination in a way that promoted the progressive development of international law and its codification and furthered the establishment of binding international norms governing issues critical to the use and exploration of outer space. The delegations expressing that view were also of the view that considerations under thematic priority 2 (Legal regime of outer space and global governance: current and future perspectives) could provide a good opportunity to enrich the work of the Committee in order to address the role of space in achieving the goals contained in the 2030 Agenda for Sustainable Development.

41. The Subcommittee expressed its gratitude to the organizers of the following events, held on the margins of the current session of the Subcommittee:

- (a) Side event organized by Austria and Oman on the theme "AMADEE-18: International Mars Analog Research in the Desert of Oman";
- (b) Side event organized by the Russian Federation to screen the film *Salyut-7*;

(c) Side meeting organized by the Office for Outer Space Affairs on the theme "The Global Space Partnership for the Sustainable Development Goals";

(d) Seminar organized by ESPI on the theme "China engages: opportunities and prospects for the international space community";

(e) Seminar organized by ESPI on the theme "'Space2030' and 'space 4.0': synergies for capacity-building in the twenty-first century".

E. National reports

42. The Subcommittee took note with appreciation of the reports submitted by Member States (A/AC.105/1154) and a conference room paper (A/AC.105/C.1/2018/CRP.8) for its consideration under agenda item 4, entitled "General exchange of views and introduction of reports submitted on national activities". The Subcommittee recommended that the Secretariat continue to invite Member States to submit annual reports on their space activities.

F. Symposium

43. In accordance with the agreement reached by the Subcommittee at its forty-fourth session, in 2007 (A/AC.105/890, annex I, para. 24), and at its fifty-fourth session, in 2017 (A/AC.105/1138, para. 289, and annex I, para. 26), a symposium organized by the Office for Outer Space Affairs on the topic "Expanding horizons: the case for industry engagement in UNISPACE+50 and beyond" was held on 6 February 2018.

44. The symposium, which consisted of presentations and discussions, was moderated by Simonetta Di Pippo, Director of the Office for Outer Space Affairs, who also served as a panellist. The other panellists were Johannes von Thadden, Senior Vice-President of Airbus Defence and Space; Donna Bethea-Murphy, Senior Vice-President of Global Regulatory at Inmarsat; Luciano Saccani, Senior Director of Business Development of Sierra Nevada Corporation; Yao Jianting, Deputy Director of the China National Academy of Space Technology; and Giovanni Rum, a consultant for the Office for Outer Space Affairs.

45. The Subcommittee noted with satisfaction that the symposium, the eleventh in a series of symposiums to strengthen partnerships with industry, had contributed to raising awareness with regard to the engagement by the Office with industry and the private sector. In that connection, the Subcommittee commended the Office for Outer Space Affairs on its excellent work.

G. Adoption of the report of the Scientific and Technical Subcommittee

46. After considering the items before it, the Subcommittee, at its [...] meeting, on 9 February 2018, adopted its report to the Committee on the Peaceful Uses of Outer Space, containing its views and recommendations, as set out in the paragraphs below.